Hoechst challenges received wisdom on organizational learning

Berthoin Antal, Ariane; Krebsbach-Gnath, Camilla; Dierkes, Meinolf

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Ariane Berthoin Antal,
Camilla Krebsbach-Gnath & Meinolf Dierkes

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ABAntal@wz-berlin.de
kgdkronberg@t-online.de
dierkes@wz-berlin.de

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Ariane Berthoin Antal, Camilla Krebsbach-Gnath & Meinolf Dierkes

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Wissenschaftszentrum Berlin für Sozialforschung gGmbH (WZB)
Reichpietschufer 50, D-10785 Berlin
Telefon: +49 30 25491-0, Fax: +49 30 25491-209
www.wz-berlin.de

Abstract

How does a major international company learn? In particular, how does a *successful* international company even discover that it needs to learn to do things differently, and to do different things, rather than relying on its past recipes for success? According to the literature, success tends to be a hindrance for learning, while crises tend to stimulate it by calling into question existing ways of seeing and doing things. The analysis of the far-ranging transformation of Hoechst into Aventis in the years 1994 to 2000 challenges and refines some concepts in the literature on organizational learning. The case illustrates how learning was triggered in a successful organization without waiting for a crisis, how double-loop learning was achieved through mergers and acquisitions, and how unlearning was managed in divestments. The paper modifies theories on the nature of visions and the role of top managers in creating visions, and it breaks some new ground in the exploration of the role of organizational politics in organizational learning processes.

Zusammenfassung

Wie lernt ein großes, internationales Unternehmen? Und wie erkennt insbesondere ein <u>erfolgreiches</u>, internationales Unternehmen, dass es lernen muss, neue Ziele und Arbeitsweisen zu entwickeln, statt auf altbewährte Rezepte für den Erfolg zurückzugreifen? Erfolg wird in der Fachliteratur als wesentliches Hindernis für das Lernen dargestellt, während Krisen Lernen fördern, indem sie die Mitglieder einer Organisation mit der Notwendigkeit konfrontieren, bestehende Sichtweisen und Handlungsmuster zu hinterfragen. Die Analyse des weitreichenden Transformationsprozess zwischen 1994 und 2000 von Hoechst zu Aventis ermöglicht es, einige wichtige Elemente der Organisationslerntheorien zu revidieren und zu präzisieren. Dieser Fall zeigt z.B., wie Lernen in einer erfolgreichen Organisation ausgelöst wurde, ohne auf eine Krise zu warten. Darüber hinaus erlaubt der Hoechst-Aventis Fall Einblicke in die Operationalisierung zweier wichtiger Lernformen, die in der Literatur häufig genannt aber selten empirisch nachgewiesen werden, nämlich Reflexives Lernen (*double loop learning*) und Entlernen (*unlearning*). Aus dieser Arbeit lassen sich darüber hinaus neue Erkenntnisse über die Entstehung und Wirkungsweise von Leitbildern in Organisationslernen und über mikropolitische Dimensionen von Organisationslernprozessen ableiten.

Introduction*

How does a major international company learn? In particular, how does a *successful* international company even discover that it needs to learn to do things differently, and to do different things, rather than relying on its past recipes for success? According to the literature, success tends to be a hindrance for learning, while crises tend to stimulate it by calling into question existing ways of seeing and doing things (Berthoin Antal, Dierkes & Marz 1999; Starbuck & Hedberg 2001). The far-ranging transformation of Hoechst into Aventis in the years 1994 to 2000 challenges and refines some concepts in the literature on organizational learning.

Hoechst was the largest chemical-pharmaceutical company in Germany and in the world. At the end of 1993, the year before the transformation process was initiated, the company had posted an operating profit of € 770 million on sales of € 23.5 billion. It had 172,000 employees working in 120 countries. The scale of its international activities was considerable: three quarters of its turnover was generated abroad. It pursued research in 17 countries and dedicated a higher percentage of its budget to research than the industry average. The portfolio was broadly diversified, with activities in chemicals (accounting for 27% of sales), health (24%), fibers (15%), polymers (14%), engineering and technology (12%) and agriculture (8%). Hoechst was a company with a long history of success and it appeared to be strong and well equipped for the future. However, instead of continuing along the same lines, the Hoechst management undertook major changes and forced the company to learn many new ideas and competences. As a result, by the end of 1999, Hoechst had all but ceased to exist, but its managers could boast of having successfully positioned its component businesses on the threshold of the new millennium. The pharmaceutical and agricultural divisions had been transformed with a European partner, Rhône-Poulenc, into a new multinational corporation under French law, Aventis SA, focused on life sciences. The divested specialty chemicals were doing well under the banner of Clariant, and basic chemicals were prospering at the spin-off company, Celanese. In 1999 the Aventis Group reported an operating profit of

* The authors would like to thank Holger Straßheim and Michael Wortmann for their helpful comments on an earlier draft of this article.

€2.7 billion on sales of €20.4 billion. It achieved these results with 44% fewer employees than it had in 1994 (Hoechst 1995, Aventis 2000). The research budget of € 2.38 billion put Aventis to the top of the list among its world-class competitors.

A comparison between Hoechst in 1994 and at the end of 1999 suggests that the scope of the transformation spans the full range of learning forms identified by Argyris & Schön (1978): single loop learning, double loop learning and even deutero learning. The company learned not only to improve existing processes but also to re-think its overall purpose, and to embed learning into its vision, culture and structure. Furthermore, there is evidence that Hoechst had unlearned (Hedberg 1981) some of the things that had made it successful in the past but were impeding its ability to deal appropriately with emerging challenges. For example, it left behind its roots in the chemical industry and "unlearned" its assumption that success required a diversified portfolio, disentangling itself from all business activities that did not fit under the heading of "life sciences." It learned to let go of its exclusively German-based decision-making culture by reconfiguring its top management to include non-Germans and by shrinking from a very large bureaucratic headquarter to a small head office staff in Strasbourg (assigning greater decentral responsibility to business units, also with international managers at the helm) . It also learned how to change its knowledge base and improve its research and development function, thereby strengthening the pipeline of products and speeding up their entry into the market. Thus, it embarked on the possibly most important type of learning in the pharmaceutical industry: knowledge creation (Nonaka & Takeuchi 1995), and here, too, Hoechst made visible progress during the period 1994-1999.

An analysis of the transformation of Hoechst provides insights into a number of key concepts and factors enabling organizational learning. In addition to generating a better understanding of the role of success and crises in triggering organizational learning, the case of Hoechst offers a platform for studying the role of leadership, visions, and mergers and acquisitions in learning processes. It thereby provides not only a rich case for developing a deeper understanding of key issues in organiza-tional learning, but also guidance to practitioners for setting learning processes in motion, for building the coalitions needed to maintain the momentum for change, and for changing the knowledge base of the organization.

Triggering Organizational Learning

What set this multiple learning process into motion at the apparently successful Hoechst? The most obvious answer is the arrival of a new CEO, Jürgen Dormann, who took the helm of Hoechst AG as Chairman of the Management Board in April, 1994. But this answer is unsatisfactory for at least two reasons: First, Dormann's background and management style did not correspond to the received wisdom about the kind of leaders who are needed for major organizational change. He was an insider who had joined the company as a management trainee in 1963, so did not bring the fresh perspective and independence of thought that an externally recruited CEO with a track record of making change happen in other companies is expected to bring. His personal style was low-key and more effective in communicating with small groups than with large ones. Second, attributing everything to the arrival of a single person, no matter how skilled and gifted he may be, is a simplistic overestimation of the power of any leader. It is therefore necessary to look more carefully and discover what made it possible for Dormann's arrival as CEO to have such an impact at a time when the company was doing well and had no immediate pressure to engage in double loop learning or in unlearning past recipes for success. The key factors that served to trigger organizational learning in the absence of a generally shared sense of serious immediate crisis were Dormann's skill at creating a sense of urgency for change, supported by the introduction of new perspectives into top management thinking, and the formation of powerful coalitions to make change happen.

<u>Creating a Sense of Urgency</u>

Even before taking over as CEO Dormann made no secret about the fact that he wanted to make some changes, challenge established ways of thinking in Hoechst, and shake up longstanding power bases. Unlike his predecessors, he was not a chemist by training, and although he had not lived and worked abroad, he had gained an international perspective through his responsibilities for the U.S. subsidiaries, most particularly through the successful acquisition of Celanese in 1987. He saw Hoechst through different eyes than his predecessors. As he later explained succinctly, “Hoechst was German-rooted, strongly science-based, not very market-oriented, very introverted, very academic. We had to change that.”[1]

Although Hoechst seemed to be strong, he believed that it would face major problems in the future if it did not change. He was well aware of critical voices pointing to weaknesses in the company, weaknesses that could endanger its future competitiveness on world markets. Of particular concern, as the business press noted, was the fact that the pharmaceutical division “... the former pearl and profit dynamo of the company has fallen behind the international competition, because for years it has been fixated on its expensive but not sufficiently innovative research.” (Rüßmann 1990: 37, our translation). Within the German context, Hoechst was a highly respected company, with a 125-year history, but compared with multinationals on the world stage, Hoechst was “a sort of elder statesman” that was “operating in a staid and unspectacular manner” (Taggart 1993: 360). Although some of his senior colleagues on the Management Board believed that Hoechst could ride out the dip in profits in the pharmaceuticals area because they had seen the company deal with cyclical downturns in the past, Dormann was not willing to wait for problems to multiply and grow into a full-blown crisis before shaking the company out of its complacency. He understood the need to address the problems head on and to create a sense of urgency for change.

Having seen how recent attempts to achieve change in the company had become stuck because they did not have the buy-in from enough key players, Dormann officially kicked off the transformation process by giving a major speech to the top 120 senior executives of Hoechst and the general managers of the associated companies in Europe. He called it “*Aufbruch `94*,” and this German word for “new

[1] Unless otherwise indicated, quotations come from the interviews we conducted during our study of the transformation of Hoechst to Aventis. See the two-part case study and teaching note by Berthoin Antal in collaboration with Dierkes, Krebsbach-Gnath and Nonaka 2001; Berthoin Antal, Dierkes, Krebsbach-Gnath, & Nonaka 2001; and Berthoin Antal & Herbolzeimer 2001.

beginnings" soon entered the standard vocabulary of Hoechst managers in many different countries. The speech that he gave reverberated through the halls and offices of Hoechst around the world. The urgency was clear. Dormann demonstrated that although current results were good, there had been drops in performance in several business areas and the international competition was stronger and more efficient in both research and sales. He spoke of the need to grab the opportunity for change, and he outlined key issues he intended to tackle in order to become one of the top three companies in whatever business the company decided to pursue. He also expressed the belief that many people in the company – and the external stakeholders – were expecting significant change, so he thought he could count on their energy and commitment.

Acquiring Knowledge and New Perspectives

Dormann realized that the sense of urgency for change had to be broadly shared in the organization in order to ensure that people would become aware of the need to manage the company differently. To achieve this, he set up a task force to analyze the strengths and weaknesses of Hoechst worldwide and to come up with recommendations in six months' time. The group was therefore under time pressure to learn and to generate recommendations.

Dormann challenged conventional wisdom in composing his task force for the *Aufbruch `94.* He did not outsource the analysis to consultants, nor did he assign the responsibility to the most senior managers who would automatically have had the visibility and clout to make things happen in the organization. Instead, he selected second and third level managers from different Hoechst businesses all around the world, individuals he had come to know and respect. One of the members later commented: "If you look at the combination that was in the group, the interesting part was that many people were from the periphery." In other words, Dormann chose "internal outsiders" (Berthoin Antal & Krebsbach-Gnath 2002) to bring in new perspectives into the analysis of Hoechst's strengths and weaknesses and into the formulation of concepts for the future.

Surprisingly for a traditional German-based company, several of the task force members were non-Germans. For example, there was Ernie Drew, CEO of Hoechst Celanese, who had come to Hoechst with the acquisition of Celanese in 1987, Claudio Sonder, who was responsible for Hoechst's Latin American operations, and Bill Harris, who headed the fibers business in the U.S.. Thomas Hofstaetter also participated, bringing in his experience from Asia, where he ran the pharmaceutical business in Japan. Several members of the task force were based in Germany, but most of them, too, had international experience. Bernd Sassenrath, for example, had worked in the U.S. for Harris in the fibers business, and Knut Zeptner had spent most of his time in the UK and Japan. Peter Jakobsmeier from the corporate center brought in expertise on mergers and acquisitions. Reinhardt Handte was responsible for the specialty chemicals division of Hoechst. Unusually for such a major change initiative, the task force had only one external member, Wilhelm Rall, who happened to come from a consulting company, but "it was not a McKinsey project," Rall and his fellow members emphasized. The designated secretary of the task force, Gerold Linzbach, came into the team from a staff function working on mergers and acquisitions because Dormann valued his original thinking style. "I looked for some complementarities," Dormann explained.

For the next six months, each member of the team dedicated half of his time to the task force, while continuing to run his part of the business. The task force did something very unusual for Hoechst at the time: it looked outward to international companies in different industries to see how they were managing their operations around the world. Instead of benchmarking with Hoechst's German competitors, Bayer and BASF, the task force members interviewed managers in corporations like General Electric, ABB, Ciba Geigy, and Royal Dutch Shell. By drawing on a far wider range of companies than the traditional German competition to explore best practices and to understand the standards these companies were setting for themselves, the members of the task force gained fresh perspectives on Hoechst's operations and different ideas about what the organization could and should learn to do differently.

Dormann himself only attended the first meeting of the task force, and neither he nor any Management Board member intervened in the group's work. The key message the task force sent to Dormann and the Board after completing their analysis of the data they had collected internally and externally, six months of work was that the company needed to have well-defined businesses and clear lines of responsibility. The task force recommended that

- Hoechst be restructured into worldwide business units;
- The country-level operations were to become service providers for the business units, and
- The Management Board members were to focus on strategic issues rather than getting involved in operational matters.

This recommendation entailed transforming the deeply entrenched "centralist functional culture into an entrepreneurial culture," as Claudio Sonder described it. In other words, as people were soon to discover, the proposed structure essentially implied demoting country managers from their thrones as local kings, and it implied drastically reducing the size and power of headquarter staff.

In terms of the literature on phases in processes of organizational learning (e.g. Huber 1991), Dormann had carefully selected members he knew already shared his sense that the organization needed to learn and change, the prerequisite stage for engaging in learning that is often overlooked in the phase models (Berthoin Antal & Krebsbach-Gnath 2001). The role of the task force was to work on the second phase of learning, namely the acquisition of knowledge and perspectives. This they did by tapping both internal and external sources of knowledge. The members of the taskforce thereby laid the groundwork for awakening the readiness to learn among a broader range of members of the organization who had not yet been aware of the problems in the organization and the challenges set by international competitors. This illustrates the iterative movement between phases in organizational learning. Then, the task force moved on, with the Management Board, to disseminate and act upon the knowledge it had generated about the weaknesses in the organization and about best practices elsewhere.

Tackling the Power Structure

Organizations have drawers and filing cabinets that are littered with the reports and recommendations written by task forces, consultants, and other well-intentioned agents of change. The lesson too often learned by employees at all levels of organizations is that the energy they invested into providing inputs into the reports is wasted, little is likely to come of them in reality. Cynicism and inertia grow from repeated experiences of change initiatives with little or no follow up. Blockages occur particularly frequently when the recommendations require learning and change at senior management levels and in the culture of the organization (Berthoin Antal, Lenhardt, & Rosenbrock 2001). Hoechst had experienced interrupted learning and change processes in recent years, so Dormann had to ensure that his *Aufbruch `94* and the recommendations of his task force did not become bogged down or lost in filing cabinets. He tackled the power structure.

<u>Forming Powerful Coalitions</u>

Dormann was fully aware that organizational learning and change are not the outcome of heroic leadership (Badaracco 2001), but rather require leadership at many levels (Sadler 2001). Therefore, he worked to ensure he had a strong power base above him in the Supervisory Board[2], at his side in the Management Board, and below him in the next management levels. Not only Hoechst insiders but also the German business press took note of the fact that the Supervisory Board broke with tradition after Dormann took over as CEO. His predecessor, Professor Wolfgang Hilger, did not become Chairman of the Supervisory Board, as the previous CEOs had done at Hoechst. Instead, Erhard Bouillon, a former Management Board member with many years of experience in human resources and industrial relations at

[2] The governance structure of Hoechst, like other German publicly owned corporations, included a two-tier Board. Employee representatives hold half the seats on the Supervisory Board, whose responsibilities include appointing the members of the Management Board and monitoring the work of that Board.

Hoechst, became the Chairman of the Supervisory Board. The choice proved to be particularly significant in gaining the support of labor representatives for the major structural changes over the coming years. The business press at the time credited Dormann with having orchestrated this unusual decision (Fischer 1995).

Dormann also made significant changes in the Management Board over the first year and a half of his tenure, reducing it in size from 11 to 9 and later to 6 members. Six Management Board members were of retirement age when Dormann became CEO, so he used the demographic dynamics to his advantage to bring in new members with fresh perspectives and to shrink the Board size by not replacing all the members who left. He consciously sought to bring in people he believed would be "change agents who saw from the outside the blocked arteries of headquarters," as he put it. Not surprisingly, Dormann continued to draw on "internal outsiders" for his Management Board, bringing in Ernie Drew to become the first non-German member, followed by Claudio Sonder and he also persuaded Horst Waesche to return to Germany from his position as president of Hoechst in Japan.

New Organizational Structure

Another step Dormann took to implement changes was to put a new organizational structure in place as of January 1, 1995. The new structure reflected the ideas laid out in the *Aufbruch `94* speech and the recommendations of the task force. The key elements of the change were the restructuring of the organization into regional clusters, and the primacy assigned to business units. In other words, the former country-based structure remained only to provide services to the business. The large headquarter was streamlined into a much trimmer corporate center. Staff were reassigned from control functions for the Board to service functions for the businesses.

Dormann's strategy for building powerful coalitions and changing the structure of the organization cleverly pre-empted potential sources of resistance. The key players like Claudio Sonder, Ernie Drew and Horst Waesche left their roles as regional and country heads when they joined the Management Board. By giving these "internal outsiders" the responsibility first for analyzing the situation and recommending solutions, then for actually implementing those solutions, he took them out of the field where they could have effectively blocked the implementation of the change. The arrival of these new Management Board members had another unexpected effect: whereas Management Board members had traditionally been responsible for a particular business area, regional and country heads were accustomed to thinking in terms of all the different business lines of the company. Over the subsequent years, they changed the nature of Management Board discussions from turf defense by individual members to a broader view of the company as a whole.

Maintaining the Learning Momentum: Keeping the Sense of Urgency Alive

It is not enough to trigger learning in organizations. A key management challenge is to maintain the learning momentum. The energy for generating and implementing new knowledge and approaches, for making new structures and procedures work, has to be renewed. Here, again, Dormann and his team challenged conventional management wisdom. Instead of imposing internationally the procedures developed at headquarters, they imported ideas from subsidiaries and adapted them to work for the rest of the company. One tool in particular was helpful in keeping the sense of urgency alive in Hoechst, the Strategic Management Process.

After the Task Force submitted its proposals, Dormann dissolved it and assigned its members to key responsibilities for delivering change. Besides promoting several of these senior managers onto the Management Board, he asked them to launch the Strategic Management Process, a technique for assessing businesses and for allocating resources that Dormann had observed working very well under Drew at Hoechst Celanese. There was the danger that managers would perceive and resist this initiative as the imposition of American ideas, so the choice of experienced and trusted managers from Frankfurt to work on the process was crucial. Dormann selected Guenter Metz, the most senior member of the Management Board and Deputy Chairman of Hoechst, to head the Strategic Management Process Committee. Metz' colleagues characterized him as particularly adept at building bridges between Germans and other cultures, between the older and the younger generation in the Board, and between the old and the new mindset in Hoechst. According to insiders, this was yet another example of Dormann's skill at building powerful coalitions for change.

> He picks people who he thinks will do exactly what he has in mind, and then lets them do it. He thinks a lot about people. I think his abilities to observe and feel people out and listen to people are almost unique.

The managers evaluated the 35 major business units of Hoechst and placed them in three[3] categories:

- *Invest* (show potential for growth, driven by technology)
- *Reinvest* (good earnings producers worth reinvesting in to maintain position)
- *Cash-generators* (businesses that made money with little further investment)

Such a comprehensive approach was new to Hoechst. "This was the first time in the history of the company that such a rigorous strategic evaluation of all businesses was conducted under the same parameters," remembered a manager. Drew described the process and the findings of the first exercise in 1994-95.

> They were very strict performance criteria. So, if you didn't perform (and at that time over 80% of the businesses did not meet the minimum criteria for performance in their categories) they were required to develop a plan for how to meet the criteria within three years. Or they had to change to a different category.

Another novelty for Hoechst managers was the requirement to include benchmark data in their analysis and planning process as of 1995-6, in order to compare their business with that of key competitors. The benchmarking analysis became an instrument to achieve Dormann's goal of cracking through the internal focus of

[3] In Hoechst Celanese the Strategic Management Process applied a fourth category ("sell") but when Hoechst first introduced the process world wide, there was no intention to divest any businesses, so the fourth category was not used. The analysis later proved that Hoechst did in fact have activities it needed to sell.

Hoechst managers. Until that point, if anything, then only Bayer and BASF, the traditional German competition, had been considered relevant. Few Hoechst managers had experience in developing business strategies. In the past, they had submitted marketing strategies, or budget plans that essentially extrapolated from past performance. Many managers needed coaching through the new process by members of the Strategic Management Process Committee and often by external consultants as well in the beginning. The incentive to deliver solid strategies was high. Drew reported succinctly: "We said, 'you are not going to get any capital approvals unless you have a valid, approved strategy.'" Annual milestone checks were scheduled, and the impact was dramatic, because, as Harris explained,

> "The Strategic Management Process, to the extent that it shone spotlights on businesses that were grossly under-performing, produced crises in those businesses."

That sense of crisis stimulated a willingness to change and improve the business. The picture that emerged from this analysis revealed to the Management Board members that

> "A lot of the businesses were not up to speed, too small, not enough technology, not enough critical mass, the cost base was too high. We had done a lot of things. We had stretched ourselves too much in the past, so we were mediocre in a lot of things, but not good or top in even a few things."

The striking thing about the Strategic Management Process is that it was nothing particularly flashy or complex. It was a relatively simple tool for acquiring knowledge about the company. The benchmarking dimension of the process generated knowledge about competitors that enabled the Hoechst managers to interpret and evaluate their situation in light of external standards. The knowledge acquired, interpreted and shared among managers in the course of rigorously applying the Strategic Management Process guided action and maintained a sense of urgency for the organization to keep on learning.

Changing the Knowledge Base

The Strategic Management Process revealed some hard facts about the overall condition of the business that made the Hoechst managers realize they had to do things differently, and do different things. They also had to recognize that they would have to stop doing some things in order to be able to survive. One of the senior managers summarized the conclusion from the process of acquiring knowledge about the condition of the various businesses and comparing them to the competition:

> Dormann discovered that he had too many sick businesses and could not bring them all back to health. He had to choose those that had the highest potential for profitability and low cyclical dependence.

Hoechst had to learn how to change its knowledge base in order to compete with the best in the world, and this entailed learning how to let go of businesses it could not afford to keep investing in. So the decision was: focus and divest.

Learning to Leave Old Skills Behind: Divestments

Hoechst had experience in acquiring companies, but for the first time it had to learn how to divest itself of businesses. The first major divestment process began in the 1990s. The foray into cosmetics, which Hoechst had added to its diverse portfolio in 1968 ended relatively painlessly because this business was peripheral for the Hoechst tradition and culture. The divestment procedure continued, cutting ever closer to the core activities and identity of the company. Within the next years a variety of businesses were spun off or sold. There were intense negotiations involving the labor representatives in the businesses located in Germany, in order to protect employee interests as far as possible. The most difficult decision to take was when Hoechst shifted away from its chemical roots. It sold its specialty chemicals business to Clariant in July 1997, thereby divesting itself of the business on which the company had been founded. Somewhat more than a quarter of the 40,000 employees in Germany at the time went to Clariant. Industrial chemicals were spun off as well when it was decided in 1998 that Celanese, which Dormann had been so instrumental in acquiring, the company that had injected American change managers into Hoechst, was to be divested. Hoechst managers undertook the divestment process as an active leadership responsibility, not only negotiating conditions for them but also sharing their future: Handte went with his employees to Clariant and Sonder took his into Celanese.

<u>Acquiring new skills and competencies</u>

The top management concluded from the Strategic Management Process that Hoechst had to focus on pharmaceuticals, a decision that implied acquiring new knowledge and competences. The company had to learn how to get products into the largest market in the world, the U.S., and it had to learn how to use new research techniques, specifically bio- and gene technology. Therefore, in parallel to divesting itself of some businesses, it started acquiring knowledge by buying companies that already had the knowledge Hoechst needed. The most significant investment made soon after Dormann became CEO was the acquisition of the Kansas-based pharmaceutical company Marion Merrell Dow (MMD) for $7.1 billion in March 1995. With this move two goals were pursued:

1. To boost Hoechst's access to the U.S. market, and
2. To gain experienced managers of international calibre.

Dormann had already learned through the acquisition of Celanese in the 1980s how to draw on the skills embedded in an acquired company. He had brought experienced managers like Drew and Harris into Hoechst from Celanese rather than replacing them with Hoechst managers. Marion Merrell Dow also had several key players who soon took leadership roles in the new global health care company, Hoechst Marion Roussel (HMR). Dormann put it very simply: “We bought Marion Merrell Dow to get access to Dick Markham and Frank Douglas, who are a powerful tandem.” Markham brought a great deal of experience in the industry from his twenty years at Merck before joining the Board of Directors of Marion Merrell Dow. Within Hoechst, he became head of the entire pharmaceuticals business. Dormann valued Markham’s ability “to think how big pharma thought, to make big ideas happen, and to build an innovative machine.” Douglas, originally from Guyana, brought complementary skills. He came with an M.D., a Ph.D. and eight years of experience at Ciba Geigy, where he had had a brilliant career. He assumed worldwide responsibility for pharmaceutical research within Hoechst.

From these senior managers and their colleagues, Hoechst was to learn not only how to improve its sales and marketing, but also how to radically reform its research and development processes in order to become more successful in generating innovative products and getting them approved. The newly acquired American managers also strengthened the resolve of Dormann and his change team to continue down the route they had embarked on, because they brought in a management culture with a clear message: “Focus, focus, focus!”

In order to achieve the vision of becoming one of the top three suppliers in the world and generate an above-average return on capital employed, Hoechst needed to develop several competencies it had not previously built on. Most important among these were the ability to develop new drugs and obtain approval fast, and the ability to deal with critical international financial analysts.

Reorganizing Research and Development into Drug Innovation and Approval

Hoechst was a research-driven company. It was proud of its research tradition, and had maintained a higher level of investment into research than many of its competitors. However, top management had come to recognize that spending large sums on research did not automatically lead to the launch of large numbers of innovative products. The member of the Management Board responsible for the pharmaceutical division, Karl Seifert, admitted to a journalist at the time,

> We were always one of the first companies to come up with new chemical entities, such as the ACE inhibitors, but always one of the latest on the market with them. (Koberstein 1996: 3).

When Markham and Douglas arrived in Frankfurt in 1995 with their new global responsibilities for pharmaceuticals and for research in Hoechst they both saw a need to make significant changes that would entail shifting the mindset about the purpose of research in the organization. One step was to establish research as a global function, and to get people thinking in a global manner.

> The orientation back then was still of a German company, a company dependent on the German market with a few outposts, as opposed to a global company that happened to have its headquarters in Germany.

Markham felt that global thinking needed to become embedded throughout the entire process of getting new products to the market. He wanted to move the thinking away from the approach of getting new products “approved in Germany and then somehow piece something together to try to get it approved in Japan and the United States” towards the goal of

> developing the product from the beginning with the idea that we are going to submit it in all the regulatory agencies worldwide on the same day, and to get it approved as close to simultaneously as possible.

Another significant step was the decision to move the core of late stage development to Bridgewater, New Jersey, "in an effort to capture the crosswinds of where research was happening, in the world's largest market,” Dormann explained. A close look at the range of projects undertaken by researchers in Hoechst revealed that the function suffered from a similar problem as had been uncovered across the whole company during the Strategic Management Process. Markham found that the research and development function of the pharmaceuticals division

> was working on too many things and the resources were spread too thin to get anything done well. When we began, there were over 70 projects in development. We did a prioritization and kept 25 out of the stock and stopped about 50. We just stopped funding them. A miracle happened: the 25 all started moving faster in a more consistent way and the result now is that we have one of the better pipelines in the industry.

Considering that it takes an average of 12-15 years to develop a new drug and bring it to market, and that the pre-tax cost of developing a new drug has risen from $500 million in 1990 to close to $750 million in 2000, focusing on carefully selected projects is a crucial determinant of return on investment in research. As Markham pointed out, “deciding what you’re *going* to do is easy; deciding what you’re *not* going to do is the hard part.”

To tackle this challenge, Douglas introduced a rigorous and participative process to evaluate projects. Researchers had to present their projects to their peers and to an external panel, which then decided which projects to pursue and which to drop. In order to achieve maximum buy-in for the outcome, Douglas asked the researchers themselves to design the evaluation process, insisting only that he have a veto right on the names of people selected for a review panel, and that six items be addressed in the presentation:

- The scientific data
- The hypothesis
- The data to support the hypothesis
- The time from the last milestone to the next milestone
- The critical question that needs to be asked
- The commercial assessment of the attractiveness of the project

Having ensured that a robust and transparent process was in place, Douglas

> never once made a comment on a project. I left it to the external panel and the internal panel to comment. No one could say that I had a favorite project that I wanted to maintain, or that I didn’t like a project.

The goal, as a French research director put it, was to have a “seamless value chain from research to marketing.” To achieve that goal Douglas took a significant symbolic step in 1997 that had very practical implications. He changed the name of the function from the traditional label “Research and Development” to “Drug Innovation and Approval.” “Why did I do that? To start the dialogue,” Douglas explained. He had observed that

> people were very focused on science. They were focused on doing experiments. But they were not focused on asking the question ‘will this experiment tell me whether this component or this project is likely to lead to a drug?’ They were not asking the critical question.” Changing the name of the function caught people’s attention, and “they began to understand that we wanted them to operate differently.

Douglas recognized that changing the label implied challenging the very identity of researchers, and he recalled a conversation with a top scientist who asked,

> What am I going to do? I go to congresses and everyone knows me as a researcher. Now I have to tell them that I work in 'Drug Innovation and Approval.' I don't know what my identity is. Douglas responded, When you can say to them 'I am a drug innovator and here is the drug or the drugs that I have innovated and put on the market,' I do not think that you will have an identity problem.

The output over the next five years of the former research and development function, in its new guise of Drug Innovation and Approval, was to prove Douglas right. Such management disciplines as targets, milestones, and accountability, were new to Hoechst researchers, who initially deeply resented the cultural change that the introduction of these ideas implied. And, they felt that having to accept changes from American managers who had been acquired from MMD, a company that had no research track record, was adding insult to injury. A Management Board member recalled the mood: "German researchers, the elite of the world – to give them a foreign manager, and an African-American one at that! That was really tough." Douglas himself pointed out that "it is not usual for an African-American person to be at this level in America either." He had Dormann's support, however, and was valued as "an eternal revolutionary who can pick out the most valuable ideas from a whole sea of ideas." Douglas earned the respect of Hoechst researchers when the changes he implemented bore fruit, but the road was rocky for several years.

The learning process that Markham and Douglas led in Hoechst to develop a new knowledge base challenged the conventional wisdom that had built up in the company over many years. But they both emphasized that the concepts they introduced into the company were not particularly new or complicated, just "good standard management practices". They were not running after the most recent management fads or fashions; they simply brought into the organization practical ideas and routines that had worked well for them elsewhere. Their management style was effective in stimulating learning in the pharmaceutical division of Hoechst and its research labs because they gave people responsibility for working out how to apply the ideas in their context.

Learning to deal with international financial markets

Dormann's decision to make Hoechst a global leader generating "an above-average return on capital employed" required, according to his views, increasing the exposure of Hoechst to Wall Street investors in the United States. The traditional relationship between German companies and their shareholders had not prepared Hoechst managers for the demanding nature of international financial markets. Dormann had set in motion some awareness and learning about financial markets in the 1980's, in order to move the finance department beyond the traditionally German approach of solid accounting, but this thinking had not yet spread into the organization. The institutional investors on Wall Street expected far higher returns for shareholders in shorter periods of time than German companies had aimed for in the past, and their analysts insisted on obtaining much more information about companies than the German companies had been accustomed to providing.

Klaus Juergen Schmieder, who became CFO of Hoechst in 1996, remembered well the enormous impact his first exposure to the capital markets in the U.S. had had on him some years earlier while he was working as Treasurer of Hoechst Celanese.

> The investment bankers came in and talked to me a lot, the exposure was endless. I think it was the first time that I thought about the value of Hoechst. They showed me a graph on which market capitalization was plotted. There was Merck, Pfizer, and Johnson & Johnson, and all the U.S. healthcare companies. At the very end of it were Bayer, Hoechst, and BASF. Our traditional view was that 'these are the big guys,' because for me Hoechst was always this huge conglomerate with a lot of size, revenues, people, everything. But all of a sudden, I realized that this was not the case. We were second tier in terms of value. So that was a real eye opener. Hoechst must have done a lousy job up to that point in terms of shareholder value creation if we were so far behind.

The managers Hoechst had acquired who were experienced in the U.S. capital market, particularly Drew and Markham, along with Schmieder, actively worked on building relationships with the investment community. They coached their German colleagues in how to prepare for meetings with analysts, make presentations, and how to respond to penetrating questions. Waesche remembered the learning curve he had to go through in dealing with

> the analysts, 30-year-olds who ask all kinds of questions, no holds barred. That was something new for the German culture. They were totally foreign to us – but what we did know was how to deal with the unions.

The latter skill proved crucial throughout the transformation process in the European locations, but first Hoechst needed to learn how to get the analysts to understand the company.

Dormann and his team appeared to have learned very rapidly how to communicate with the analysts. They and their corporate strategy at first earned high praises from the investment community. By 1998 one analyst wrote,

> Since taking charge of Hoechst AG in 1994, Mr. Dormann has won rave reviews for putting Hoechst, the huge chemicals conglomerate through a breathtaking alchemy ... Analysts repeatedly praised the strategy as bold, brilliant, and fundamentally 'Anglo-Saxon' in its hard-headed focus on profit (Andrews 1998: 11).

The market value of Hoechst more than doubled between 1994 and 1996 – but 1997 was a difficult year and Hoechst managers had to continue working hard on their organizational learning curve.

The Role of "Misty Vision" in Organizational Learning

The past decade has generated a flurry of academic publications, consulting projects and corporate brochures on vision (Dierkes, Marz & Teele 2001). The conventional wisdom has built up quickly, telling leaders that it is their responsibility to provide a clear vision to guide their companies into the future (e.g. Grossman & King 1993; House & Shamir 1993). Dormann and his colleagues discovered that a vision is not something a leader can or should deliver top-down and fully-fledged. Instead, it is something that emerges and undergoes clarification and change over time, particularly in turbulent environments. The Hoechst management took the path of working out the vision and adjusting their thinking to the circumstances. It is a messier and sometimes more confusing process because there are twists and turns in the road forward, but it is a more realistic approach to leadership. Piers Ibbotson of the Royal Shakespeare Company calls it leading and learning by working with a "misty vision" (Berthoin Antal & Krebsbach-Gnath 2002; Berthoin Antal & Dierkes forthcoming).

When Dormann took the helm of Hoechst in 1994 he excited the organization with the vision of being among the top three companies in the world in each of the company's businesses. In the *Aufbruch `94* speech the pharmaceutical, agricultural, and industrial chemical sectors were given equal weight. Gradually a "switch from optimizing the existing business to developing something really new" occurred in the thinking of senior managers, Hofstaetter recalled. They discovered that they really had the opportunity to create new structures, develop a new vision, try out new strategies, and change the culture of the organization. After a while, it emerged that Hoechst could achieve its goal of being among the top three only by focusing on certain businesses and leaving others, and pharmaceuticals promised to produce the highest returns. Then in 1997, during the very period in which Hoechst was disappointing its shareholders, Dormann announced that it was becoming a "life science company." The concept created an umbrella for focusing on the pharmaceutical and the agricultural business and using biotechnology and genetic engineering as sources of innovation – and it implied a major shift away from the chemical industry roots of Hoechst.

The sense of vision being the outcome of an emergent process was shared by many of the top managers. As Schmieder said,

> I think as we moved forward things kind of developed. At least, that's the way I look at the process, that we were on a journey to discover what was lying ahead. I don't think that we had this preconceived vision.

Nevertheless, many managers, including Schmieder, had a feeling that Dormann's capacity to envision the future was greater than that of other senior managers in Hoechst. "Maybe Dormann had [the life science vision], but he never articulated it." Some managers believed that the ability to see ahead, but not to push the organization faster than it could handle the new ideas, was a particular strength of Dormann's. "He very skillfully allowed the organization and the people to learn," observed a senior manager in Japan.

External factors also contributed to the shift to a life science vision. The creation of Novartis was definitely noticed by people in Hoechst. The positive response of the capital markets to Novartis, created through the merger of the two major Swiss-based pharmaceutical companies, Sandoz and Ciba Geigy, in 1996 and to the label life science did not go unnoticed in Hoechst. Their managers believed that their businesses were undervalued and would remain so unless they reconfigured them to meet the new market signals. The label life science was attractive for several reasons. The chemical industry, including Hoechst, had experienced a number of environmental accidents in recent years, so it needed to move away from activities and labels that were associated with pollution. The other possible terms, like biotechnology or genomics, had negative associations in Europe at the time.

Life science was also a useful label because of its fuzziness. There is no agreed definition of exactly what it includes, so it enabled Hoechst to "retain some diversity. It could retain all of the elements of the large diversified chemical-pharmaceutical industry that might conceivably apply to the use of biotechnology and later disciplines," speculated a molecular biologist who had close interactions with Hoechst over twenty years. Dormann also saw the fuzziness of the term as an opportunity. Speaking to 120 top executives of Hoechst at the Corporate Conference in Boston in October 1997 he pointed out that,

> The life sciences concept has become quite popular in the investment community because it is believed to be the strongest driver thanks to innovative biotechnology, growing demand, and global dimensions. But, surprisingly enough, there is no clear understanding or definition of what a life

> sciences business consists of. … Therefore, we have to create our own individual concept for the Hoechst Group.

Hoechst appeared to be well positioned to compete at the leading edge of life science. The acquisition of Marion Merrell Dow had given the pharmaceuticals division "the necessary critical mass", as Hofstaetter put it. Hoechst had also been building a strong presence in the crop science area through its joint venture with Schering, AgrEvo, created in 1994. Acquisitions had further grown that business area as well. The crop science field, however, was not without its problems. The future of the market for the products was unclear and in Europe there was skepticism about the environmental safety and the actual need for genetically modified products. Early on, protesters sabotaged an experimental field with genetically modified rapeseed. In addition, within the academic and business communities doubts started to emerge about the usefulness of the shared platform. The markets and the distribution were too different for synergies to occur at that end of the process, and even researchers were becoming skeptical because, "if there is a commonality, it rests in the very earliest stages of research."

Soon, the ability of the life science model to deliver the value it promised started to be questioned. Reviewing Hoechst's disappointing results a year after the introduction of the life science vision, the business press commented,

> More embarrassing yet, Hoechst is being upstaged by defiantly unrevolutionary rivals, such as Bayer AG and BASF AG. Both companies have held onto their chemical businesses and both reported big jumps in sales and profit last week (Andrews 1998: 11).

Hoechst was not alone with these problems. Even Novartis was not to succeed long in maintaining the value of its combined activities under the life science label. Hoechst managers therefore had to continue the process of clarifying the "misty vision," of trying out ideas, of adapting to realities in their search to be among the top companies in their industry.

The Impacts of "Merger-Mania" on Organizational Learning

Organizations do not learn in a vacuum: they are affected by the moods and ideas in their environment. Management trends are the outcome of various dynamics, including the recommendations of consulting firms (Berthoin Antal & Krebsbach-Gnath 2001; Kieser 1997) and by the business press. The generally shared belief in the pharmaceutical industry in the 1990s was that, as Novartis managers put it,

> You cannot be small and profitable. Some shark will come and make an unfriendly takeover. So the best defense strategy is a certain size so that nobody can swallow you.

During the decade, almost thirty mergers and acquisitions took place in the industry world-wide, most of them as of 1994. The intention was to achieve economies of scale in order to be able to dedicate more resources for expensive research and development. A member of the Supervisory Board put it simply:

> Who can afford to put DM 1 billion [€511 million] at risk every year to bring enough new products to the market? Only the first companies. It is not the magic figure of being number 1, 2 or 3 in the world, it is about being big enough to develop innovative products.

Although the business press often tends to create management fads, some business journalists succeed in maintaining a critical distance to management fashions. A few observed the shift in assumptions in the pharmaceutical industry, and they were skeptical about the logic.

> There used to be a general agreement that in pharmaceuticals not size but rather speed and the capacity to innovate were the most important factors. Now the managers of the British partners Glaxo and Smithkline are telling us that size is a precondition for speed. ... The argument of 'critical mass' is overstated. Looking back at the significant innovations from the 1970s and 1980s, they did not come from the labs of the leading companies ... but rather from the medium sized actors like the Swedish Astra, or the British Glaxo, which did not need to make any acquisitions between 1958 and 1993. (Hofmann 1998, our translation).

Hoechst was definitely affected by the pressure to grow via mergers and acquisitions during the 1990s, and, as discussed above, it became quite skilled at learning from and with its new partners. Towards the end of the decade, Hoechst managers wanted to find a partner that could guarantee a significantly greater presence on the large and particularly profitable U.S. market because Hoechst continued to be a relatively small player there, even after the acquisition of MMD. By the late 1990s the relative size of American competitors made it impossible for Hoechst to find an equal, but strong, partner in the United States. A senior German strategic planner, Juergen Lasowski, recalled that

> Companies like Merck and Pfizer had a market capitalization of between $100 and $200 billion, whereas Hoechst had a market capitalization of $20 or $25 billion. So for them it would have been very easy to absorb Hoechst, just to take it over.

However, most of the German top managers found the idea of a merger with an American company unattractive. They feared that “Hoechst would disappear if it merged with an American company, including the site and everything.” The prospect of being a junior partner in a merger was not acceptable to Hoechst.

In November 1998 rumors started emerging in the business press that Hoechst might merge with the French multinational pharmaceutical corporation, Rhône Poulenc. The company had been nationalized by the French government in 1982, and had been reprivatized eleven years later, in 1993. Since that time Rhone Poulenc had been busy separating its life science activities from its industrial chemicals business, and it had been forming joint ventures and making acquisitions to strengthen these businesses. For example, in 1994 it had acquired the remaining 49% minority interest in the Institut Mérieux (and renamed it Pasteur Mérieux Serums and Vaccines); in 1995 it had acquired the UK-based pharmaceutical company Fisons; in 1997 it bought the remaining 32% interest in its principal subsidiary Rhône-Poulenc-Rorer; and in the same year it also created Mérial, a joint venture with Merck. In 1998 Rhône Poulenc had operations in 160 countries and 65,180 employees worldwide, net sales of 13.2 billion Euros and an operating profit of 1.3 billion Euros.

Many Hoechst employees who heard about the rumors were “frankly speaking, not thrilled” as one research manager put it. Although they recognized that the speed of mergers and acquisitions in the industry was making Hoechst “a medium sized company in an environment of eat or be eaten,” the idea of undertaking a new merger was associated in the minds of many employees with the prospect of further cutbacks in Hoechst operations. The business press was skeptical as well.

> A merger with Rhône-Poulenc would mean that two lame pharmaceutical producers that have both fallen back in the global competition would try together to attain the top of international rankings. (Frankfurter Rundschau 1998, our translation).

Nevertheless, on December 1, 1998 Dormann and Jean-René Fourtou, the CEO of Rhône-Poulenc, held a press conference in Strasbourg to announce their intention to create “a merger of equals.” The two men spoke of the respect they had gained for each other over many months and they were confident that they could combine the strengths of their two companies to be a leader in the life science field. They intended to complete the sale of the remaining industrial activities over the course of the following two to three years. The names Hoechst and Rhône-Poulenc would vanish, to be replaced by a freshly minted one: Aventis. Instead of pursuing a merger with an American partner, the two companies had chosen a 'European solution,' so the new company would be headquartered neither in Paris nor in Frankfurt-Höchst, but in the city that houses the European Parliament for fifty percent of every year, Strasbourg. This choice was an important symbolic move.

Continuing Learning Challenges for Aventis

Finding a partner and orchestrating an international merger was only the first step in the next phase of organizational learning. Hoechst and Rhone-Poulenc would have to learn to create a new identity and a new culture together in order to achieve the targets set for Aventis. Among the challenges they would face together were:

- Hoechst and Rhône-Poulenc brought to the merger debts that added up to more than DM 20 billion [€ 10,23 billion].

- Both had an operating profit that was far below that of the industry's top players. Hoechst reported 9% and Rhône-Poulenc 15%, while the top players generated 20-30%.
- In order to put enough innovative products into the pipeline to produce the returns expected by its shareholders, Aventis would have to become more skilled than its progenitors had been in identifying potential breakthroughs and rapidly bringing them to market. This would require more than speeding up drug innovation and approval by applying cutting-edge technologies and by managing parallel processes efficiently. Increasingly, it would mean spotting potential innovations, often in small start-up companies anywhere in the world, and developing effective alliances with these organizations whose cultures are very different from that of a large multinational corporation.

The literature distinguishes between individual and organizational learning, and the coming years would test the extent to which the senior managers at Hoechst had succeeded in embedding their learning into the organization. The top management team of Aventis bore little resemblance to the Management Board Dormann had worked with during the transformation process. Drew had left Hoechst in 1997 and returned to the U.S., Sonder was the CEO of Celanese, Schmieder was the CEO of Messer Griesheim. Others, too, had moved on. Dormann himself, and several close colleagues, were approaching the mandatory retirement age for senior management. Would the organization prove able to identify and develop the calibre of managers needed for the future? Had the organization become too dependent on Dormann's reputed ability to "hold 7000 curricula vitae in his head" and his skill at putting together teams of people with complementary views and competencies?

Back in 1993 Dormann had used an unusual metaphor to capture his belief that change must be managed as a never-ending process.

> Put up tents, not palaces with thick walls and complicated rituals. Tents that you can hear through, and that can easily be taken down and pitched elsewhere if necessary. (Dormann 1993: 1068, our translation).

In 2000 he was still committed to “continuously trying to open this company to become more transparent, more flexible, and more international.” According to this management philosophy of change, not only the form, but also the content might change. In the first annual report for Aventis, published in the Spring of 2000, Dormann and his French colleague Jean-René Fourtou were already hinting that the life science concept as an umbrella for synergies between pharmaceuticals and agriculture might be temporary, and a year later Aventis sold its crop science business to Bayer, thereby becoming a pharmaceutical company.

Dormann and his team had brought Hoechst a long way since 1994, but they still faced some fundamental organizational challenges in 2000. For example, how to manage the tension between the need for flexibility of structures, processes and content on the one hand, and the need for continuity, on the other, so that the organization would not exhaust itself in change and lose its sense of orientation? Considering the speed of change in the industry, what would a vision look like that could provide both a long term orientation for management, employees and other stakeholders, while also enabling the required adaptability to permanent and profound changes in the environment?

Aventis faces yet another key learning challenge, in common with other global corporations: how to build relationships not only with shareholders but also with multiple stakeholders. During the 100 years of Hoechst, the company had developed very strong roots in Germany and an identity in different locations around the world. As a new organization that has relocated its research facilities and headquarters and closed down operations in old locations, Aventis must learn to re-connect with the societies in which it is operating. Hoechst and Rhône-Poulenc had strong reputations as good corporate citizens in Germany and France—will Aventis learn to become a good corporate citizen of the world?

Drawing out the learning from the transformation of Hoechst to Aventis

What can others learn from the transformation of Hoechst to Aventis? There are conclusions to draw for theory building that can also be applied to practice in organizations. The case reinforces some of the fundamental concepts of organizational learning while challenging others and demanding considerable modifications. The processes the company underwent are particularly relevant for the numerous companies that have longstanding international operations and now face the challenge of having to learn what it means to think and behave as a global player. Many of the lessons learned from the case are also applicable to different kinds of large bureaucratic organizations, including those in the public sector.

The transformation of Hoechst to Aventis illustrates the classical model of double loop learning (Argyris & Schön 1978), whereby the very identity of the organization is questioned and redefined. Usually the literature positions single loop learning as incremental and double loop learning as revolutionary, but the Hoechst case shows how a change that ends up as a dramatic transformation can occur in an evolutionary manner. The literature also tends to portray knowledge creation (Nonaka & Takeuchi 1995) as a separate process from single and double loop learning, but the case of Hoechst illustrates how the development of a new knowledge base is closely intertwined with double loop learning.

Among the key concepts that the case reinforces is the role of unlearning, that was introduced by Hedberg (1981). This concept is often referred to in the literature, but it is rarely operationalized. The case demonstrates the effectiveness of a specific form of unlearning long-held assumptions about the nature of the business and the measures of success, namely divestment. By letting go of traditional areas of expertise, an organization can free itself from activities and perceptions that hamper its ability to focus on and develop new knowledge bases and ways of working.

Furthermore, the analysis clearly supports the recent move in organizational learning theory away from focusing on top management (Nonaka & Takeuchi 1995; Berthoin Antal, Dierkes, Child, Nonaka 2001). It illustrates that a range of actors on different levels are involved in shaping the direction for learning and in implementing the new knowledge creation processes.

Hoechst's transformation also provides insights into the role of time in organizational learning. The literature generally assumes that "learning takes time," without offering more precise indications of time scales (Weber, Berthoin Antal 2001). The Hoechst case illustrates the factors reducing the time requirements in organizational learning, most particularly the significance of creating a sense of urgency and the role of windows of opportunity.

Closely related to the theoretical contributions on the role of time in organizational learning are the modifications the case offers for the field's understanding of triggers for organizational learning. The traditional literature lists crises, a change in top management, and the emergence of new market opportunities as key stimulants to learning. In this case, learning started in a pre-crisis or even, as perceived by some actors and observers, non-crisis situation. The drop in profits recorded in the early 1990s in the pharmaceutical was not a generally shared cause for concern. Many managers, including some of the most senior executives, did not feel that the situation required significant action, because they were used to cyclical downturns in the business and believed that the company would ride out these difficulties just as it had weathered others in the past, pointing to the advantages of a diversified portfolio to balance out the overall returns of the corporation. The new constellation of leaders at the top of the company, however, did believe that the dip in profits was more than a passing concern and they set about creating a sense of urgency in the organization, documenting the size of the problem and setting clear, high performance targets for all the businesses. They maintained a momentum for implementing change by developing and using a number of "windows of opportunities" for the various steps in the transformation process.

Modifications must be made in theoretical conceptions relating to the role of visions in organizational learning (Dierkes, Marz & Teele 2001). The Hoechst experience contradicts the expectation that the most effective vision is a clearly defined one, and it defies the conventional wisdom that it is the role of top management to formulate this vision (alone or with expert consultants). Instead, the case shows the effectiveness of a misty vision outlined by the CEO that is clarified over time in collaboration with other managers and in light of developments in the organization's environment. Even after the task force had completed its analysis and recommendations, the vision remained to some extent fuzzy, allowing for adaptation to future situations without losing its power to coordinate, focus and motivate employees' perceptions and behavior. The role of the leader is to shape but not to be the sole inventor of the vision, and to draw into the process the managers who will be responsible for implementing the vision.

The case breaks new ground in our understanding of organizational learning from acquisitions and from the periphery of the organization. It also highlights the need to study processes of organizational politics in organizational learning. The literature on mergers and acquisitions indicates that companies often cite the generation of knowledge synergies as a key objective. However, the desired outcomes are rarely achieved because the acquisition is not adequately treated as a process of organizational learning (Leroy & Ramanantsoa 1997, Vermeulen & Barkema 2001). The case of Hoechst to Aventis illustrates that the realization of synergies is only one type of learning goal, and a potentially more powerful one is the stimulation of double loop learning to create a different organization. This entails explicitly including the search for potential agents of organizational learning when considering an acquisition, and creating platforms for those individuals to work in constellations that will enable them to challenge the conventional wisdom of the organization.

The case shows how important it is for organizations to tap into their periphery in order to trigger learning at the core. By drawing on its "internal outsiders" (Berthoin Antal & Krebsbach-Gnath 2002), such as people in subsidiaries or acquisitions, or from functions that have not traditionally dominated the organization's decision-making, an organization benefits from fresh perspectives on its strengths and weaknesses and new ideas on what it could be doing. These "internal outsiders" are well positioned to make change happen because they know how the systems work, and they can therefore use the systems in order to transform them. The fact that such a tradition-bound company as Hoechst was capable of envisioning and implementing its transformation essentially only with insiders suggests that there is a far greater potential for learning in many traditional organizations than is generally suspected. Might it also imply relegating external consultants to a more appropriate marginality? (Berthoin Antal & Krebsbach-Gnath 2001).

The topic of power in organizational learning has received too little attention in the literature to date. It has been treated as a kind of dirty secret that is only starting to come out of the closet relatively recently (Berthoin Antal & Dierkes forthcoming, Filion & Rudolph 1999, LaPalombara 2001). The Hoechst-Aventis case allows glimpses into coalition building processes for organizational learning, highlighting the importance of attending to power relations at multiple levels of the organization simultaneously in order to secure the willingness to learn and the ability to implement learning. In order for better theory building to develop in the delicate area of power in organizational learning and knowledge, academics and practitioners will need to work more closely together. Only then will research be based on first hand knowledge of power in action. Will enough practitioners in different kinds of organizations open their doors? Will enough researchers share their powers of critical reflection with practitioners to shed light into this darkened topic?

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